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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,485	05/14/2003	Meng Wang	46083.UT	2351
22191	7590	05/17/2006	EXAMINER	
GREENBERG-TRAURIG 1750 TYSONS BOULEVARD, 12TH FLOOR MCLEAN, VA 22102			GE, YUZHEN	
			ART UNIT	PAPER NUMBER
			2624	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/913,485	Applicant(s) WANG ET AL.	
	Examiner Yuzhen Ge	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I, claims 1-3, drawn to shape, icon or feature-based image processing.

Group II, claims 4-6, drawn to hierarchy or tree structure in image compression.

Group III, claim 7, drawn to adaptive coding of color images.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

2. The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I specifically discloses a method and apparatus for image processing related to region of interest. Group II teaches a method and apparatus for encoding and decoding images using multi-resolution and tree structures. Group III discloses a method of adaptive and progressive encoding which compress images according to a compression size.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

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application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. During a telephone conversation with Mr. Richard Kurtz on April 21, 2006, a provisional election was made with traverse to prosecute the invention of Group III, claim 7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-6 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

DETAILED ACTION

Claim Objections

5. Claim 7 is objected to because of the following informalities: it recites “taking the ratio of the two largest amounts of data to the smallest amount of data”. A ratio is calculated by dividing a number by another number. It is not clear how to take ratio of two numbers to another number. Appropriate correction is required. The office will examine the claim by interpreting it to “taking the ratio of the largest amounts of data to the smallest amount of data”.

Claim Rejections - 35 USC § 112

6. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the limitation "the mask"(last line of the claim) and “the desired compression size” (line 6 of the claim). There is insufficient antecedent basis for this limitation

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in the claim. The office will examine Claim 7 by interpreting “the mask” to “a mask” and “the desired compression size” to “a desired compression size”.

Claim Rejections - 35 USC § 103

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shapiro (US Patent 5,563,960, cited by IDS), in view of Benamara (US Patent 6,128,413), further in view of Suzuki et al (US Patent 5,828,780).

Regarding Claim 7, Shapiro teaches a method of transmission of digital signals that creates a scalable, content accessible bitstream comprising the steps:

pack the most significant bits of the largest coefficients first followed by refinement bits and the most significant bits that are significant for coefficients at the next bit level (col. 4, lines 60-67, Fig. 5, Figs. 7 and 8, the coded coefficients are considered as packed);

repeat this process in a recursive fashion until the desired compression size is obtained (col. 4, lines 60-67, col. 5, line 58-col. 7, line 47, Figs. 7 and 8, the bit budget is regarded as the desired compression size, 832 in Fig. 8, 732 in Fig. 7, 932 in Fig. 9);

if performing region of interest processing, consider the packing overhead introduced by a mask when determining the bit budget (Fig. 9 the bit budget is related to a mask M as shown, also because region of interest processing is not performed here, the packing overhead introduced by a mask does not need to be considered).

However he does not teach

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calculate the pack ratios to be used for each channel of the wavelet decomposition hierarchy by taking the ratio of the largest amounts of data to the smallest amount of data;

determine the optimal amount of data to allocate for each color channel based on the user specified compressed file size; and

In the same field of endeavor, Benamara teaches to calculate compression/pack ratio and use it to determine the bit budget/total amount of data to allocate for each color channel (col. 10, line 30-50) and compression ratio is defined as the ratio of the size of the uncompressed image (largest amount of data) to the size of the compressed image (smallest amount of data). Benamara's allocations to difference channels are optimal in the sense that most of the visual information is contained in the Y channel and therefore it gets most of the bit budget. Suzuki et al teach user specifying compression ratio and thus the compressed file size (col. 3, lines 29-38). It is desirable to control amount of data according to color channel (col. 10, lines 40-43 of Benamara) and provide control to the users (col. 1, lines 34-38, col. 2, lines 53-55 of Suzuki et al). Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the method Benamara and Suzuki et al to

calculate the pack ratios to be used for each channel of the wavelet decomposition hierarchy by taking the ratio of the largest amounts of data to the smallest amount of data;

determine the optimal amount of data to allocate for each color channel based on the user specified compressed file size.

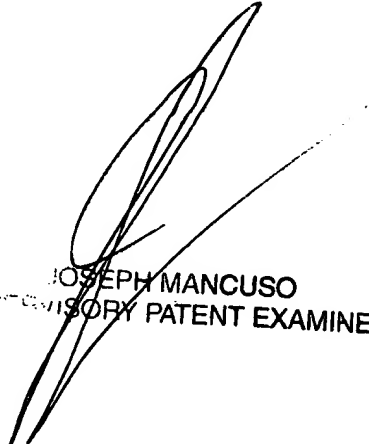
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuzhen Ge whose telephone number is 571-272 7636. The examiner can normally be reached on 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mancuso Joseph can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yuzhen Ge
Examiner
Art Unit 2624



JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER